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ABSTRACT

Six papers that address issues on postsecondary education finance and were presented at a conference sponsored by the Finance Center of the Education Commission of the States are summarized. The first paper, by Frank A. Schmidtlein and Joseph J. Popovich, Jr., is an exposition of the demographic, economic and social changes affecting the climate toward, and environment of higher education and the way it is financed. Susan C. Nelson addresses the issue of the equity of public subsidies for higher education and John Augenblick looks at the equity of the ways in which community colleges are financed. The paper by William D. Hyde, Jr., is a review of the effects of direct student financial aid programs and changes in tuition level on students' decisions to take further schooling after high school. The interrelationship between federal and state efforts in financing postsecondary education is examined by John B.Lee. The final paper, by John Minter, addresses the topic of institutional financial health and describes several technical problems related to assessing the financial health of colleges and universities. (Author/SPG)

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Issues In Postsecondary Education Finance

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Issues in Postsecondary Education Finance
Summaries of Six Issues

Report No. F78-2

Edited by William D. Hyde Jr.

Education Finance Center
Department of Research and Information
Department of Postsecondary Education

Education Commission of the States
Denver, Colorado

Warren G. Hill, Executive Director

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William Hyde is a postsecondary finance economist in the Education Finance Center of the Education Commission of the States. Special appreciation is expressed to Myrna Snodgrass for her assistance in preparing the manuscript for printing.

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Introduction

There are issues of education finance such as equity, efficiency and quality that arise at all levels of the education system. The specific context, however, within which these common issues may be found varies from elementary to secondary to postsecondary education. That is, there are several features of postsecondary education that separate postsecondary education finance from its counterparts. For example, the voluntary nature of attendance in higher education changes the question of equity somewhat. Though the general population pays for the subsidies for higher education, only a portion of that population receives direct benefits from the education. Furthermore, a student in higher education has a choice of the institution he or she attends. Because choice exists, the governmental unit that provides the tax revenue to support an institution of higher education may not coincide with the unit from which the student comes, a situation that leads to questions about the appropriate level of support that different levels of government, institutions and individuals should provide.

On the institutional side, maintaining diversity is a commonly accepted goal in higher education, but the range of diversity raises questions about institutional roles, the magnitude or existence of social benefits of programs and the amount of government financial support institutions and individuals should receive. Additionally, for postsecondary education institutions, there are multiple sources of revenue and varying quantities of funds derived from those sources. Institutions receive support from federal, state and local governments, from students, other private sources, as well as from internal institutional sources. The single largest and most noticeable difference is that found between public and private institutions. Public institutions receive subsidies that allow them to reduce tuition to a fraction of that charged by private institutions. This basic discrepancy underlies much of the policy debate over the form that federal financial assistance to higher education should take. While many of the issues in postsecondary education are found also in elementary and secondary education, the context in higher education is quite different.

The staff at the Finance Center of the Education Commission of the States (ECS) has expanded its work in school finance to include postsecondary education finance. As one of its first activities in postsecondary finance, the Center sponsored a conference in November

1977 at which six papers, each addressing a particular policy issue in postsecondary education finance, were presented and discussed by a group of scholars, state and federal education administrators and legislators, and other individuals working in the field of postsecondary education finance. Each author reviewed the literature on his or her topic, or developed an appropriate policy framework for discussion of the topic, and then offered suggestions for future research or direction for further policy development. The purpose of this booklet is to make summaries of those papers available.*

In drawing up a list of policy issues in postsecondary education finance, priority was given to those topics considered to be important issues at the federal level and issues with which the states must contend. The topics selected, however, do not represent the complete range of issues in postsecondary finance. The choice of six topics was made for logistical reasons more than for any reason of taxonomic completeness. In fact, there is a bias in the topics not selected. The bias is not intentional, but it is one that commonly occurs throughout research. The tendency in research is to measure what is measurable and to overlook what is not. The result is that more attention is given to those components of an issue for which research can be done while less attention is given to other unmeasurable aspects although they may deserve equal consideration.

An example in education has been the cost-benefit analyses of furthering an individual's schooling. Researchers conducting cost-benefit studies typically acknowledge the existence of both monetary and nonmonetary benefits and then proceed with an analysis of only the monetary benefits — those that are measurable. Though they can not be faulted for not doing the impossible, there is a tendency to justify policy decisions with research findings that represent only a portion of the total circumstances. With regard to cost-benefit analyses, only now, after we have seen a decline in the monetary returns to education, has more concern been given to the importance of nonmonetary benefits. Previously, monetary benefits were high enough to justify by themselves an individual making additional investments in his or her education. Nonmonetary benefits were acknowledged but were generally overlooked. To the extent that research results do affect policy making, it is important to acknowledge this bias in what is chosen for research.

Other examples abound. Currently, issues of equity in higher education are receiving much attention, but the research focuses on the distribution of students and dollars; policy issues are molded by concern over these same parameters. Equal educational opportunity

* Copies of the individual papers are available from the ECS Education Finance Center.

is often thought of in terms of equalizing student participation rates or in terms of equalizing the price different students pay to attend. While participation rates and net prices are operational definitions of equity, they have some serious defects. A more valid measure of equity should take into consideration an individual's personal preference for education; as yet this has not been done.

Another example is found in institutional financial health studies where researchers attempt to explain the condition of institutions in terms of tangible assets and liabilities and incomes and expenditures. However, nontangibles may be more important than any meaning wrought from quantification of these finances. In trying to provide equal educational opportunity, policy makers sometimes emphasize equalizing expenditures, but the basic issue of how quality of education — the real basis for providing equal educational opportunity — is affected by expenditures is given less attention by the policy maker. In defense of the policy maker, decisions must be made; the best a policy maker can do is to base a decision on the evidence available. It is the job of the researcher to insure that proper attention is given to the right issues, although research is limited by the degree to which areas of inquiry are developed.

The six topics that the Finance Center chose for its conference on postsecondary education finance outline the state of the art or the boundaries in the respective topics. The first paper, by Frank Schmidtlein and Joseph Popovich, is a wide-ranging exposition of the demographic, economic and social changes affecting the climate toward, and environment of, higher education and the way it is financed. Educators, administrators and legislators who deal with these issues of declining collegiate enrollments, the financial condition of institutions, the growing diversity of students and a host of related issues must pay attention to these basic demographic, economic and social changes that are occurring and that affect the structure and goals of the postsecondary educational system.

The next two papers deal with different aspects of equity in higher education. Susan Nelson addresses the issue of the equity of public subsidies for higher education. She compares the findings and methodologies used in nine different studies, ranging from the landmark study by Hansen and Weisbrod (1969) of the distribution of current net benefits of higher education in California to the recent theoretical work by Conlisk (1977). Nelson concludes that separate evaluations of the tax and the benefit sides are preferred to an analysis that combines benefits and costs into a single measure. In the next paper, John Augenblick looks at a new issue — the equity of the way in which community colleges are financed. He presents a case for the existence of inequities in the way community colleges are funded compared to the way other sectors of higher education are

funded, in the ability of different community college districts to support their community colleges, and in the amount of tuition that students of different districts have to pay for similar educational programs in a community college. He believes that all three types of inequities can be remedied separately or simultaneously.

What the role and effort of the federal government should be in financing postsecondary education is not clear. There is no consensus on what the justification should be for federal involvement in postsecondary education nor is it clear what the level of participation should be. Little is known about the effectiveness or efficiency of federal assistance, and expectations vary widely. William Hyde reviews the effects of direct student financial aid programs and changes in tuition level on students' decisions to take further schooling after high school. He concludes that although the effectiveness of federal and state government financial assistance programs are limited in the impact that they can have because of the limited individual responsiveness to price variations, much can be done to improve the distribution of funds available for improving access and choice.

One of the major concerns of the federal government is how its financial assistance programs are related to state programs and tuition levels. Currently, very little is known about the interrelationship between federal and state efforts in financing postsecondary education. This topic is the essence of John Lee's paper, and he points out a number of differences that exist among states and offers some policy alternatives.

During the last few years a number of separate events have resulted in greater attention being paid to students than to institutions in higher education. Nevertheless, postsecondary institutions are facing serious financial problems resulting from diminishing enrollment growth, increasing fixed and variable costs, and an increasing need to provide more diversified educational services. These influences require institutions to modify their programs to better fit student interests and to stay within their smaller institutional budgets. While a certain amount of this adaptation is an ongoing, healthy activity for any organization, large changes in financial resources available to an institution will lead to results that may be deemed undesirable, such as a substantial reduction in program quality or the closing of institutions. John Minter addresses this topic of institutional financial health and describes several technical problems related to assessing the financial health of colleges and universities. Probably more than for any other area, further progress in this area will depend on the availability of valid and reliable data.

For a researcher in higher education finance, one of the most per-

sistent problems is finding adequate data for addressing particular research questions. All six authors independently concluded or implied that improved data are essential for making further progress in the areas of postsecondary education finance discussed. Given the substantial number of data bases that exists, one might tend to discount as an inherent characteristic of researchers their continual "complaining" about the need for more or better data.

For two reasons, one should not underestimate the validity of the researcher's requests for data. First, as in all social science research, data become outdated and must be periodically obtained anew. In policy analysis, having current data are imperative. Second, there are many research questions to address, and, as it should be, the collection of data is generally designed to address a particular issue. Occasionally, data collected for one purpose can be used to address other issues, but one should view that prospect as fortuitous rather than holding any expectation that the data will be useful. Different perspectives and questions of the federal, state and local governments, the education institution and the individual require different data. For example, data collected from students at particular institutions is not the same thing as data collected from particular students at whatever institutions they happen to attend. What is representative from one perspective may not be from another. This is not to say, however, that improvement in data and data collection design cannot be made.

There are efforts, by government agencies as well as by private groups, to design data bases useful for multiple purposes. In higher education, however, the problem of collecting appropriate data is more complicated than in elementary and secondary education. In elementary and secondary education the unit of analysis is generally the school district or some larger unit, and data about school districts are a matter of public record. In higher education, the unit of analysis is often the individual or student and obtaining information from an individual is a private matter. These differences create large, if not insurmountable, logistical and legal problems for those attempting to collect data.

Given the separate data needs of different components within the higher education system, there is no single approach or feasible hypothetical data set that can address all research issues. That is asking too much. Carefully designed data bases, however, can increase the usefulness of data that are collected. As a society, we adopt educational and societal goals toward which progress is difficult to measure. Having committed ourselves to certain goals, we should be willing to obtain the necessary information to assess the degree to which we are successful.

I. Higher Education Finance Issues In A Period of Transition

by Frank A. Schmidtlein and Joseph J. Popovich Jr.
Maryland State Board for Higher Education

Postsecondary education is in a period of transition. Basic demographic, economic and social changes are affecting the way higher education is financed as well as the structure and goals of the postsecondary education system. Research is needed to determine how best to adjust to these changes.

In the past, major increases in revenues devoted to higher education have resulted primarily from increases in enrollments. Demographic changes are now occurring, and most states will face absolute enrollment declines. Two dilemmas will confront higher education as enrollment-driven revenues for many institutions level and decline. First, new bases for justifying budget increases will be needed. Second, migration and population growth patterns will result in some campuses growing, some remaining stable and others contracting — often within the same state.

As enrollment growth no longer serves as a basis for budget increases, larger budgets will have to be justified on the grounds that institutions are providing new services or making qualitative improvements. Higher education already is beginning to emulate the example of elementary and secondary education by seeking funds for special programs to assist particular student populations, such as the handicapped and culturally or educationally deprived. If additional state funds are not provided and campuses losing students are not made more attractive, then costs must be reduced by restricting enrollments, which will reduce access, or by cutting back programs and services, which will affect quality.

Compounding the effect of demographic changes on higher education finance is the change in composition of enrollments. A growing proportion of the student population consists of nontraditional students — women, ethnic or racial minorities, and older students not entering a postsecondary institution immediately upon graduation from high school. As a group, these students do not respond to cost considera-

tions and institutional options in the same way as conventional students. These differences have serious implications for how institutions price their programs and schedule instructions as well as for enrollment patterns among types of institutions.

The long-term economic conditions in the United States will determine also, in part, the future prospects for higher education finance. The major cloud on the horizon is the increasing costs of energy and natural resources. If these basic commodities begin to absorb a larger portion of our income, less will be left over for the service sector of the economy; education most likely will suffer. Another factor that will affect long-term prospects is the status of the United States' competitive advantage in international trade. Increasing dependence on oil and other imports, as well as the growing tendency of U.S. manufacturing plants to locate overseas, may have adverse economic effects. The bulge in the population now being assimilated in our colleges and work force, later on to be cared for in retirement by a relatively smaller group of wage earners, will also affect our long-term economic prospects.

For several reasons, higher education has lost the aura it once had, and this loss has diminished the importance previously associated with higher education. In a sense, higher education's priority has been a victim of its own success. Until recently, the proportion of people attending institutions has increased dramatically. As a result, more people today are familiar with colleges. Consequently, institutions have lost some of their mystique and are more vulnerable to the types of criticism often leveled at elementary and secondary schools. Furthermore, a college degree no longer assures the same possibilities for upward social mobility that it did in the past. The growing familiarity of the public with higher education, together with its diminished role as a conveyor of social status no doubt will adversely affect its competition with other state programs for public dollars.

Historically, higher education generally has had a clear mission closely identified with the achievement of important national goals. In the early years of this country a degree conferred status, promoted social mobility and, by promoting mobility, was a major component of the American "melting pot." Later it also provided technical experts for industrial and agricultural progress. Today there is much less emphasis on the concept of the "melting pot" as we are attempting to preserve ethnic differences and promote cultural diversity. The shortages of technically trained persons are not as critical today in

many fields as they were in the recent past. These changes have confused the sense of purpose of higher education. Similarly, higher education is debating intensely the balance it should achieve between providing for the academically talented and for the broader segment of society that can profit from some form of postsecondary education.

These demographic, economic and social trends will affect the achievement of the postsecondary education goals of access, diversity, quality and economy. The coming challenge to access will be to provide programs for which increasing numbers of students are available, most frequently part time and older students. A continuing growth of off-campus programs will be required to serve these students. The increasing cost squeeze on institutions is likely to lead to increases in tuition as institutions seek to avoid program reductions with attendant lay-offs and transfers of faculty. As tuitions increase, lower- and middle-income students will find access more difficult and some will not enroll in postsecondary education.

Efforts are being made to offset these higher costs by increasing the funding of student financial aid. However, at present, procedures for utilizing financial aid programs are complex and the programs are poorly coordinated; thus such aid is not fully offsetting the effects of tuition increases. The simplification and coordination of student aid programs should be one of our major national goals over the next few years.

Another barrier to access may be enrollment ceilings imposed by state agencies to limit potential budgetary increases when actual enrollments become known. These ceilings will not be imposed with the conscious purpose of limiting access but, unless they are set very carefully and coordinated with efforts to build quality in institutions with declining enrollments, they well could have this effect.

Further diversity, defined in terms of the number of institutions, will be limited over the next decade. Some limited increases in the number of institutions could occur as a result of the shift of the population to the South and as states complete systems of community colleges. However, a number of institutions are likely to close, and these are more likely to be independent institutions than public institutions despite the fact that public four-year colleges and universities will be squeezed on one side by the growing and widely distributed community colleges and, on the other side, by the prestigious universities. State colleges will have to make strenous efforts to define clearly to the public their role, to articulate their programs more closely with those of the community colleges and to identify themselves closely with regional concerns. Low-cost programs in

popular areas such as business administration and education are likely to proliferate unless checked by state higher education agencies as part of their accreditation and program review function. The number of institutions attempting to offer such programs may continue to increase unless state efforts designed to ensure quality are successful.

The trends taking place will affect the quality of the students in some institutions, the quality of programs, the quality of faculty, the support given to research, the quality of administration and student support services. As enrollment falls, institutions will face a strong temptation to lower their admission and retention standards. There will be a concern on the part of universities that the increase in part-time students and growing number of evening and off-campus programs will lower the quality of degrees. There appears likely to be attempts by the states to offset trends toward lower admission standards through the use of enrollment ceilings, particularly for the public four-year institutions. However, the fear of declining enrollments may restrain institutions that wish to become more selective.

Attempts to improve quality will receive greater attention as quality becomes a more important basis for budget justifications for institutions seeking to loosen the linkage between enrollment growth and budget increases. Courses that are not popular with students will have a difficult time attracting resources. This may lead institutions to increase the number of required courses but, in doing so, taking care not to cause themselves to lose students. Unemployment will continue to place a premium on career-oriented curricula. This tendency could be to the detriment of the liberal arts. Research activities will be particularly vulnerable to budgetary stringency, including both directly supported research efforts and departmental research supported indirectly by lower teaching workloads.

The quality of the faculty also may decline as they are less able to transfer between institutions and as travel monies are reduced, providing them with less exposure to new ideas and to changes taking place on other campuses. The faculty will have a higher average age, leading to conservatism. Decreasing opportunities for transfers will lead to greater pressures to promote from within.

The continued demand for data and the regulation of institutions will increase their costs of administration. Much of the incentive for institutional change seems likely to come from external agencies, particularly state higher education agencies because institutions will find it politically difficult to make internal shifts of resources. Legislators and governors increasingly will look to state higher education agencies to initiate changes that are difficult to promote at the

campus level. The physical plants and libraries at campuses could deteriorate unless firm steps are taken to maintain their support. Some of these steps may have to be taken by state-level agencies because institutions will be under heavy pressure to maintain support for their faculties and programs at the cost of other areas.

The major diseconomies in postsecondary education are going to result from underutilized campuses, unneeded buildings and underenrolled programs. Very little in the way of significant savings is possible from greater managerial efficiency or technological advances. The major inefficiencies are going to result from political problems that are inherent in cutting back and shifting resources among areas. State legislatures may be the principal agents in maintaing inefficient practices as they protect the interests of their districts and constituents. The cost of data collection and of regulation, as noted earlier, is likely to continue to increase; inflation will consume revenue increases although there may be some savings from energy conservation measures. The use of part-time faculty receiving lower salaries will cut costs. However, pressure from collective bargaining agents is mounting to provide salaries that are proportionately equal for part-time and full-time faculty. Pressures will be increasing to find employment for new doctoral degree holders. The large supply of Ph.D. holders relative to demand in traditional areas of academic employment will create market conditions that will tend to depress academic salaries. However, the increasing age of faculties will place a higher proportion of them at the top of pay scales, offsetting the savings from lower entry-level salaries. Very likely, as ways are sought to reduce public expenditures, more of the costs of student services will be borne directly by students. The fees for such services, together with tuition increases, will act to further inhibit enrollment increases.

The prospects for financing higher education no doubt appear pessimistic. However, the best assurance that our tradition of support for higher education will continue is candid assessment of the problems. There admittedly is a danger that candid discussions of the financial problems ahead will lead to anticipatory political actions that decrease revenues even further than otherwise might be the case. However, in the past, legislatures generally have been highly supportive. Failure to gain a clear perspective on the issues we face seems a more certain way to bring about legislative disillusionment and declining public support than accurate and open analysis.

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II. The Equity of Public Subsidies for Higher Education: Some Thoughts on the Literature

by Susan C. Nelson
The Brookings Institution

Equity can be defined in a number of ways. Economists frequently distinguish between "horizontal" and "vertical" equity, treating equals equally and treating unequals in some appropriately unequal manner. Subsidies for higher education merit attention for three primary reasons that essentially reflect alternate ways to judge the vertical equity of the subsidies.

First, higher education is often advocated as a mechanism for providing general equality of opportunity for financial success in life. In this context, the subsidies might be considered equitable if they lead to a more equal distribution of lifetime income among the population, or if they enhance social mobility over time. Second, apart from equalizing lifetime outcomes there is much concern with providing equality of educational opportunity. Subsidies would be viewed as equitable if they equalize education opportunities by concentrating on low- rather than on high-income students. Third, even though the relationship between the distribution of subsidies and the distribution of lifetime incomes is extremely difficult to determine, if not impossible, there is a general concern that as much of public spending as possible contribute to a more equal distribution of income among the population as a whole, or at least not redistribute current income from poor to rich. The research literature has approached these three questions in a variety of ways. However, the verdict has yet to arrive on the vertical equity of subsidies for higher education, in part because these three interpretations of equity and how it should be measured may produce conflicting conclusions for a given situation.

In proceeding with an examination of equity, it is important to realize that equity is only one element in any judgment on the appropriateness of a financing pattern. Both equity and efficiency — the allocation of resources so that they can generate the greatest value of output — must be considered, but a policy that can produce gains in one without reducing the other is most desirable but also rare. Too

often, the two goals conflict, requiring a trade-off between them. The problem is to determine where the compromise should be set. There is no right nor universal answer. Normative and political judgments, not economic arguments, are determinative. Economic evidence, however, can contribute to those judgments. The evidence in the literature can be reviewed by examining (a) the private benefits of the subsidies, (b) the costs, and (c) the net result of combining costs and benefits. Table II-1 lists a number of studies that have examined the equity of public subsidies for higher education and briefly compares their approaches and conclusions.

The two basic questions that need to be answered in an examination of the private benefits of the subsidies are (a) who are the beneficiaries and (b) how much benefit do different groups receive. The first question is one of access to public higher education and relates to the distribution of opportunities. The second involves calculating the value of the subsidies received, either in terms of the value of the government of its expenditures (the input approach) or in terms of the value to the students in added lifetime income (the output approach). Answering these two questions, however, has been confounded by the lack of relevant and reliable income measures. Furthermore, results are so sensitive to how income is defined and to technical adjustments for inflation and other factors that often the conclusions one might draw from a study are dependent upon which assumption, definition, or adjustment is chosen.

Within the literature using the input approach for estimating the private benefits of public higher education, benefits are measured in any of three ways: annual government subsidies to public institutions (on a per-student basis), total institutional subsidies of a student throughout all his or her years of enrollment and annual institutional subsidies plus financial aid to students. In general, the findings are less ambiguous than those concerning who (in terms of income levels) receives the benefits. In most respects (probability of attending any college, probability of attending a senior institution, probability of completing a degree or even public dollars spent on a student's education), children from upper income families fare better than their low-income counterparts. To the extent that educational opportunity is considered as the likelihood of receiving a certain amount of higher education (even controlling for ability), it seems clear that the opportunities facing high-income students are superior to those available to students with low-income backgrounds (Hansen and Weisbrod, 1969). In terms of tuition subsidies and need-based student financial aid, however, the benefits of public subsidies are slightly more concentrated at the lower part of the income spectrum than are students (McGuire, 1976; State of New Jersey Commission, 1976).

Table II-1 A Brief Comparison of Studies on the Equity of Public Subsidies for Higher Education

Author and Date	Data	Focus of the Study	Costs	Do Subsidies Improve the Income Distribution?
Hansen & Weisbroad (1969)	California 1964-65	Net benefits for students with the median income at California public universities, state colleges and community colleges	Total family taxes	No
Windham (1970)	Florida 1967-68	Taxpayer net benefits by income class	Taxes allocated to public higher education	No
Pechman (1970)	Same as Hansen and Weisbrod	Taxpayer net benefits per family in the income class	Taxes allocated to public higher education	Yes-maybe
Zimmerman (1973)	St. Louis 1969-70	Expenditure per full time-equivalent student at three community colleges plus financial aid, minus family taxes per-student basis, by income class	Taxes allocated to public higher education	No-not equalizing
Machlis (1973)	New York City 1968	Taxpayer net benefits by income class	Taxes allocated to public higher education	Yes
Crean (1975)	Canada 1961-62	Income distribution of students and share of tax payments, by income class and age	Distribution of tax payments by income class	Yes
McGuire (1976)	California 1971	Subsidies (including financial aid) by income class	(No cost side)	Not regressive
New Jersey Commission (1976)	New Jersey 1975-76	Taxpayer net benefits by income class, including student aid	N.J. taxes allocated to public higher education	No
Conlisk (1977)	none	Intergenerational model of the determination of income		?

The output approach to estimating the distribution of private benefits is not well developed. There are conceptual as well as technical problems in predicting future income; the empirical estimates of the distribution of lifetime benefits from public higher education are fairly rudimentary. At this time, it would be useful to have information about the distribution of income throughout life for a cohort of high school seniors by family income at time of high school attendance (Hartman, 1972).

The process of determining who bears the cost of public subsidies for higher education is fairly straightforward, and there is little variety in the methods employed in the literature. The results, however, are sensitive to the assumptions made about tax incidence. While federal taxes are consistently considered progressive (though to varying degrees), state and local taxes can range from slightly progressive to clearly regressive depending on the assumptions (Pechman and Okner, 1974, Tables 4-10). After an effective tax rate has been chosen for each income class (or perhaps alternative tax rates, using both regressive and progressive incidence assumptions), total tax payments can be calculated for each family or income class. Then, with information on the share of individual taxes to be alloted to higher education, it is possible to calculate either the tax payment for higher education per family in each income class or the share of all tax payments for higher education that each income class pays.

The appropriate way to combine the costs and benefits of public support for higher education depends on the question being asked. The majority of studies in the literature focus on the current redistributional effects of net subsidies. Upon examination, the main finding to emerge from these studies is that subsidies for public higher education appear to redistribute income from upper to lower income groups. Researchers adopting this current "net benefit" approach, however, either ignore the intergenerational transfer of resources (the fact that the generation that pays for higher education is not the one that receives it), or they assume that parents benefit from their children's education sufficiently to consider the family as the unit that both benefits and pays.

An alternative concern is whether the effects (such as the lifetime distribution of income) of the program, not just the subsidies for higher education, are equitable. Some (most notably Pechman) feel that the problem of intergenerational transfers makes the question intractible and that the benefits and tax burdens should be examined separately to determine whether each is distributed in a desirable manner. Alternatively, Conlisk holds that, at least theoretically, the effects of these intergenerational transfers could be measured and any resultant shifts in the distribution of income could be determined.

Even though Pechman made a significant contribution to the net benefit approach, he agrees with Hartman (1970) that it is not the best way to understand the distributional impact of public subsidies to higher education. He maintains that "the real question is whether public higher education makes the distribution of lifetime incomes of the recipients of its benefits and of society in general more or less equal" (Pechman, p. 368). Conlisk develops an intriguing simultaneous equation model of intergenerational changes in the distribution of income. Although Conlisk's model is unable to determine the effect of changes in tuition subsidies on a measure of the equality of the distribution of incomes, he is able to show that the net benefit approach does not "provide a reliable indicator of the equity effects of tuition subsidies for higher education" (1977, p. 160). In some examples that he concocts, the net benefit and equity measures move in the same direction, while other times they conflict.

In summary, what do these studies show about the equity of public subsidies for higher education? First, none succeeds in determining the most important and interesting effect of the subsidies — their impact on the distribution of lifetime incomes. Second, in terms of the current effects, the studies give the impression that net benefits (subsidies received minus taxes paid) redistribute income in a desirable fashion: there is more evidence of a transfer from rich to poor than the reverse. Third, the technical validity of the net benefit calculations themselves is questionable because of the accuracy and comparability problems with the income data noted earlier. The fact that using more timely information on income to estimate the distribution of the tax burden reversed the conclusions of two major studies (Windham, 1970, and State of New Jersey Commission, 1976) underlines the critical importance of choosing data carefully. Economists are used to settling for approximations of their desired data series, but in net benefit calculations where the results are so sensitive, mismatched data are worse than none.

A more fundamental problem with net benefit calculations is that a "good" distribution of net benefits can mask an inequitable provision of educational opportunities, and a "bad" distribution can arise from equitable circumstances. The goal of any measure of equity, of course, is to distinguish consistently and correctly "equitable" situations from "inequitable" ones. Since equity is a normative concept, there is no one right definition. Still, a summary measure must give an answer that is consistent with our sense of equity in simple cases in which the judgment is obvious, before we can trust it in ambiguous instances. Unless equity for higher education subsidies is defined simply as the redistribution of income from society's rich to society's poor, the distribution of net benefits is not a trustworthy measure of equity. By example, subsidies for higher education could be raised

through progressive taxation of all households and distributed among students progressively, with low-income students' families receiving higher subsidies than their more affluent counterparts, perhaps because of a substantial need-based student aid program. While this seems like an eminently equitable subsidy, a net benefit calculation based on these tax and distribution structures could show a redistribution of income from lower to higher income classes — a system that would be deemed inequitable — simply because parents of students are at a high stage of their age-earnings profiles. Similarly, a contradiction can arise under the opposite conditions of having a regressive tax structure and a progressive (anti-poor) benefit structure. The net benefit approach there could indicate redistribution of income from rich to poor because even under regressive taxes, the rich pay higher tax bills than do the poor.

As critics of the net benefit approach have proposed before, a preferred method for examining the equity of higher education subsidies is a separate evaluation of the distribution of taxes and benefits. This has the advantage of avoiding most of the technical and conceptual problems that mar net benefit calculations, including the lack of comparability between income measures used in tax benefit studies, imputing direct benefits to nonusers, the intergenerational transfer and the question of which tax dollars go to higher education. Unfortunately, this approach has no way of judging whether an equitable benefit pattern may more than compensate for an inequitable tax burden. Such a balance has to be made by policy makers.

The main points of this paper can be summarized in the context of the debate over low tuition. Many of the studies on the net benefits of subsidies for public higher education have been used as fuel for the low tuition debate, generally on the "raise tuition" side. This paper has good and bad news for low-tuition advocates. On the good side, it has shown that existing evidence, poor though it tends to be, supports the position that tuition subsidies do seem to redistribute current income from upper to lower income classes. It goes on to emphasize, however, that the validity of this evidence must be questioned due to severe technical and conceptual problems. Furthermore, the redistributional impact of low tuition (or other forms of subsidies) does not appear to be a very useful indicator of the equity of this method of finance. A preferred approach would evaluate the tax and benefit sides separately, judging the tax system on its progressivity (or lack thereof) and the benefit side on its success in providing equal educational opportunities.

The bad news for low-tuition supporters is that it does not seem to have achieved equality of opportunity (interpreted as independence between family income and the consumption of a given amount of

higher education), though undoubtedly it has accomplished much more in this direction than would no susbsidies for public higher education. The most important tests for the equity of current subsidies would come in a comparison with alternative financing schemes. More information needs to be gathered on the practical effect of those alternatives on educational opportunities before an informed comparison can be made.

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III. Financing Community Colleges: An Examination of the State and Local Roles

by John Augenblick
Education Finance Center
Education Commission of the States

Community colleges, like other postsecondary education institutions, obtain revenues from a variety of sources, including governmental appropriations and student tuition. Unlike other postsecondary education institutions, however, community colleges in some states are supported in part by funds obtained from local community college districts. State support of community colleges is usually determined by a formula that provides either a fixed amount (flat grant) per student or a proportionate amount of the expenditure per student. Embellishing this basic structure may be factors related to the characteristics of institutions, programs or students, as shown in Table III-1. There are three problems that result from current systems by which states provide aid to community colleges. State aid is distributed with little, if any, consideration for the ability of local districts to generate their share of support; tuition charges vary among public college institutions and specifically among community college districts; and community colleges are not generally financially coordinated with other public collegiate institutions.

The first problem, that the distribution of state aid does not reflect differences in the ability of local districts to raise their share of revenues, results in interdistrict inequities. In a number of states, local districts are required to provide revenues in support of community colleges. Over 71 percent of all full-time equivalent (FTE) community college students and over 73 percent of all current fund revenues of community colleges are accounted for by the 20 states in which local district revenues exceed 10 percent of all community college current fund revenues. In addition, the community colleges in those states obtain more revenues per student, on average, than the community colleges in states where local revenues are less than 10 percent of all current fund revenues. Local appropriations to community colleges are generally derived from taxes levied on district property values. Since districts within a state differ in their assessed valuations, there is a variance among districts in their assessed valuations, and there is a variance among districts in their ability to

Table III-I

Characteristics of Systems of State Support for Community Colleges in 1976

State	Unit of Funding	Type of State Support	Differential for Institutional Characteristics	Differential for Program Characteristics	Differential for Student Characteristics
Alabama	institution	flat grant	no	no	no
	FTE student	flat grant	no	no	no
Alaska	credit hour	flat grant	no	no	no
Arizona[a]	FTE student	foundation program	yes, size	yes	no
Arkansas	faculty position	flat grant	no	yes	no
California	student in ADA	flat grant	no	no	no
	student in ADA	foundation program	yes, size	no	yes, adult vs. non-adult students
Colorado[a]	state operated: none[b] locally operated: FTE students	flat grant	no	yes	yes, state residents only
Connecticut	none				
Delaware	none				
Florida	FTE student		yes, size and cost of living	yes	no
Georgia	faculty positions	flat grant	no	no	no
Hawaii	credit hour	flat grant	yes, differential among islands	yes	no
Idaho[a]	none				
Illinois[a]	credit hour	flat grant	no	yes	no
	FTE student	foundation program			
Indiana	none				

Based on information contained in Wattenbarger and Starnes, *Financial Support Patterns for Community Colleges, 1976.*

[a]States in which local revenues exceeded 10 percent of all revenue from state, local and student sources.

[b]None as a designation for a state's unit of funding indicates that a formula is not used in allocating state aid to community colleges. Under these circumstances, institutional appropriations are generally negotiated.

State	Unit of Funding	Type of State Support	Differential for Institutional Characteristics	Differential for Program Characteristics	Differential for Student Characteristics
Iowa[a]	FTE student	flat grant	yes, enrollment decreases	yes	no
Kansas[a]	credit hour	flat grant	no	no	no
Kentucky	none				
Louisiana	credit hour	flat grant	yes, in some programs a reduction occurs for size	yes	no
Maine	none				
Maryland[a]	FTE student	proportion of expenditures up to a flat grant limit	yes, two small colleges are treated specially	no	no
Massachusetts	none				
Michigan[a]	FTE student	foundation program	yes, size and number of campuses	yes	no
Minnesota	faculty position	flat grant	no	no	no
Mississippi[a]	institution	flat grant	no	no	no
	institution	flat grant	no	no	no
	FTE student	flat grant	no	yes	yes, resident day students vs. part-time and evening students
Missouri[a]	credit hour	proportion of expenditures up to a flat grant limit	no	no	yes, state residents only
Montana[a]	institution	flat grant	no	no	no
Nebraska	FTE student	flat grant	no	no	no
Nevada	faculty position	flat grant	no	no	no
New Hampshire	none				
New Jersey[a]	FTE student	proportion of expenditures up to a flat grant limit	no	no	no
New Mexico[a]	FTE student	foundation program	no	no	no

raise equal amounts of revenue at the same tax rates. Such variances may lead to concurrent variances in expenditure levels, when state aid is not dependent on local wealth; in tax rates, when districts attempt to generate similar resources but have different tax bases; or in tuition levels, when districts use tuition revenues to supplement insufficient funds generated by local taxes. There is no rational, educational reason for allowing local community college district wealth to determine either the level of community college services or the tuition paid by students.

The second problem, that tuition levels vary across institutions, results in interstudent inequities. Traditionally, community colleges have sought to provide programs at low cost or no cost to the student, excluding the costs associated with room, board and other "maintenance" expenses. Tuition levels have been increasing at all postsecondary education institutions, although the rate of increase at community colleges has been relatively higher. While a number of states establish upper limits beyond which the tuition level cannot be set, individual community colleges set their own tuition levels, which may vary from none up to the state limit. This results in students who desire to take similar courses offered in a number of community colleges being asked to pay different amounts to enroll in them. Since the purpose of the community college is to serve the local population, students rarely leave their home districts to attend a community college in another district, with the result that they have little choice but to pay the tuition rate charged in their district.

The third problem, that state funding of community colleges is not linked to state funding of other public postsecondary education institutions, results in intersectoral inequities. That is, students at community colleges enrolled in courses similar to those offered at other public institutions may not receive the same level of expenditures as students enrolled in those courses at those other institutions. While it is recognized that the average per-student expenditures are likely to differ across institutional sectors, as well as among institutions within sectors, due to differences in role, research expenditures and the provision of public service, there is little justification for the instructional expenditures associated with similar courses to differ across institutions — particularly if the credits earned by completing such courses are transferable between institutional sectors. Increasing the concern about differential expenditures is the fact that community colleges tend to serve students from lower income groups as compared to other public institutions. This situation creates inequities in the distribution of both the costs and benefits of public support for postsecondary education.

States have not sought to deal with these three problems simultane-

New York[a]	FTE student	proportion of expenditures up to a flat grant limit	yes, full opportunity vs. non-full opportunity campuses	no	yes, disadvantaged student ratio must be same as in population
North Carolina[a]	instructional unit, relationship between faculty positions and FTE students	flat grant	no	yes	no
North Dakota	student in attendance	flat grant with a requirement for a local contribution	no	no	no
Ohio[a]	FTE student	flat grant	no	yes	yes, by student level
Oklahoma[a]	FTE student	flat grant	no	no	no
Oregon[a]	FTE student	flat grant	yes, size	no	yes, state residents vs. non-state residents
Pennsylvania[a]	FTE student	proportion of expenditures up to a flat-grant limit	no	yes	no
Rhode Island	none				
South Carolina[a]	FTE student	flat grant	yes, size and cost of living	yes	no
South Dakota	none				
Tennessee	credit hour	flat grant	no	yes	yes, level
	institution	flat grant plus proportion of the credit hour grant	no	no	no
Texas[a]	contact hour	flat grant	no	yes	no
Utah	none				
Vermont	none				
Virginia	FTE student	informal formula used	no	yes	no
Washington	FTE faculty	flat grant	no	yes	no
West Virginia	faculty position	flat grant	no	yes	no
Wisconsin[a]	FTE studen.	percentage equalizing	no	yes	no
Wyoming[a]	FTE student	foundation program	yes, size	yes	no

Based on information contained in Wattenbarger and Starnes, *Financial Support Patterns for Community Colleges, 1976.*
[a]States in which local revenues exceeded 10 percent of all revenue from state, local and student sources.

ously in their community college funding systems. Some states have, however, attempted to reduce the influence of interdistrict wealth disparities by distributing state aid in an equalizing manner, primarily through foundation formulas that guarantee a level of revenue per student at a specific level of district tax effort. Table III-2 shows the results of such a system in Illinois in terms of the extent to which state aid promotes either equal expenditures per student or equal tax power (the ability to generate equal revenues per student at equal levels of tax effort).* In 1975-76, a disparity existed among the state's community college districts in terms of their total revenues per student, although that disparity was not as large as the variance in the size of the tax base among districts. Revenues were strongly correlated with wealth — a result, in part, of the positive correlation between tuition levels and wealth. The addition of state formula revenues to local revenues doubled the mean tax power of districts while only increasing the disparity in tax power among districts (as measured by the standard deviation) by one-third. However, the addition of other sources of revenue, including state categorical grants, federal aid and tuition, while increasing the revenues and tax power of districts, also increased disparities in tax power among districts. Data from Illinois are used also to examine both to what extent expenditure variations among community college districts were permissible (which is caused by students enrolling in different proportions in programs of widely varying cost), and to what extent variations in tuitions caused expenditure disparities. Even taking into consideration these causes for disparity, adjusted expenditures varied directly with the property wealth of districts.

Any discussion of the relationship between the expenditure levels and property wealth of community college districts is complicated by a number of problems that need to be addressed. First, while districts generally use property wealth as the basis for tax collections, their fiscal capacity is broader and other factors, such as income, may be associated with variations in expenditure or tuition levels. Thus, the definition of local wealth needs to be clarified. Second, an appropriate task unit needs to be defined. While the analysis undertaken in this paper used the FTE student as the task unit, with expenditures and district wealth measured in per-student terms, there are other choices available, including a per-capita unit. Finally, in addition to variations in expenditures caused by tuition variations and differing numbers of students being enrolled in programs of different costs, there probably are variations caused by differences in purchasing power among districts. These cost-of-education differences need to be determined so that expenditures can be compared appropriately.

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* Editor's note. In Table 2, comparable information provided for the states of Mississippi, California and New Jersey was added subsequent to the November conference.

Table III-2

Statistics For Selected 1975-76 Finance Data for Community College Districts in Mississippi, New Jersey, California and Illinois

	Mississippi	California	New Jersey	Illinois
Number of Districts	16	70	16[a]	37[b]
District Property Wealth Per Student				
Minimum	$ 50,248	$ 36,417	$ 684,141	$ 91,993
Maximum	$298,793	$937,585	$4,312,820	$650,707
Mean	$136,172	$120,678	$1,371,348	$316,094
Standard Deviation	$ 68,205	$110,907	$ 877,253	$108,792
Coefficient of Variation	.501	.919	.640	.344
Total Revenues Per Student				
Minimum	$1,476	$1,019	$1,376	$ 893
Maximum	$2,074	$4,622	$2,250	$2,302
Mean	$1,700	$1,596	$1,699	$1,578
Standard Deviation	$ 203	$ 510	$ 218	$ 265
Coefficient of Variation	.119	.320	.128	.168
Local District Revenue Per Student				
Minimum	$151	$ 171	$371	$ 193
Maximum	$640	$4,105	$875	$1,256
Mean	$315	$ 731	$601	$ 567
Standard Deviation	$136	$ 555	$153	$ 243
Coefficient of Variation	.432	.759	.255	.429
District Tax Rate				
Minimum	1.19 mills	3.63 mills	.20 mills	1.02 mills
Maximum	3.91 mills	9.51 mills	.88 mills	2.65 mills
Mean	2.50 mills	6.12 mills	.53 mills	1.82 mills
Standard Deviation	.77 mills	1.39 mills	.20 mills	.48 mills
Coefficient of Variation	.308	.227	.377	.264
Tuition Revenues Per Student				
Minimum	$106	---	$358	$ 22
Maximum	$362	---	$651	$544
Mean	$242	---	$494	$329
Standard Deviation	$ 72	---	$ 70	$129
Coefficient of Variation	.298	---	.142	.392

[a]Each of the 21 counties, or groups of counties, are permitted to form county colleges or a community college commission. The one county that has recently formed such a commission is not included in any figures.

[b]There are two additional districts that have not been included in these figures, one of which is fully state funded and the other of which was formed just prior to the year for which data were collected.

Source: John Augenblick, *Issues in Financing Community Colleges*, Denver, Colo.: Education Commission of the States (forthcoming).

There are additional policy issues directly related to financing community colleges that are not discussed in depth. One is the problem of integrating state aid to community colleges with federal support available to institutions and, to a greater extent, to students. A second issue is whether local support of community colleges should supplement state support or be considered part of a total "public" support of community colleges. There is also the question of how to determine an appropriate level of the student contribution. There are numerous issues related to taxation; the impact of taxes on state residents and the ability of the tax structure to support future expenditure levels. Finally, one of the questions that requires additional research is how districts would respond to changes in the state support system. Would expenditures, tax rates or tuition levels be modified? What effect might such modifications have on student behavior?

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IV. The Effect of Tuition and Financial Aid on Access and Choice In Postsecondary Education

by William D. Hyde Jr.
Education Finance Center
Education Commission of the States

There are many reasons for an individual not to attend a postsecondary educational institution. One reason is that an individual can not financially afford to attend. In setting education priorities, the federal government has chosen to reduce financial barriers to attendance to promote greater access and choice to certain individuals interested in attending a postsecondary educational institution. This paper reviews the research on the effect that direct student aid programs and changes in tuition — price variables — have on an individual's probability of continuing his or her formal education in a postsecondary educational institution.

The effectiveness of subsidy programs in education should be viewed in terms of the policy instruments available for achieving social objectives in education. In higher education, as in any other field, there are certain policy variables generally considered well within the scope of the subject. There are other variables that, if not nonpolicy variables, are variables for which change can be expected only in the long term. A policy to raise the tuition level, for example, is a decision well within the higher education context and a decision that has a rather immediate impact. In contrast, a policy decision to raise the educational level of students' parents is an issue raised in a broader social context and is a decision for which the results might not be felt for several generations. While both a change in tuition level and a change in the educational level of a student's parents affect the individual's probability of attending a postsecondary educational institution (and, in fact, the parents' education is the more important variable), the effectiveness of educators to achieve educational goals or social goals through the educational system is limited by the variables that they are able to manipulate.

Research on the factors influencing student attendance at, and choice of, an institution shows that the most important variables are socioeconomic and family background variables beyond the immediate control of educators. Consequently, the effectiveness of aid or tuition policies to promote access or choice seems small compared to these other variables. Yet, within the realm of education policy variables, there is a question of whether other variables might be any more effective. Thus, educators may consider aid and tuition policies as more effective agents for change than someone operating at a higher level of policy making and for whom education is only one of several avenues for effecting change.

Perhaps the least disputed research finding in all the literature on demand for higher education is that aggregate enrollment is negatively related to the tuition level (see Table IV-1). However, on the question of how much enrollment will increase for a given tuition decrease, there is much less agreement. A standard measure for assessing the responsiveness of enrollments to changes in tuition is the enrollment demand elasticity with respect to tuition ("tuition elasticity"). Tuition elasticity is defined as the percentage change in enrollment divided by the percentage change in tuition. Using this measure, estimates from different studies can be compared, and, to give more meaning to the results, the tuition component of the elasticity is often converted to an absolute amount. A common practice is to relate a percentage change in enrollment to a $100 change in tuition.

On average, assuming that estimated coefficients apply to the nation as a whole, research results indicate that a $100 decrease in tuition will increase the proportion of 18- to 24-year-olds enrolled in institutions of higher education by .01. Since approximately one-third of 18- to 24-year-olds are enrolled in postsecondary educational institutions, this proportion is comparable to a three-percent increase in the enrollment rate.

The effect of tuition on enrollments varies across populations; specifically, two population characteristics — ability and income — are of major interest. Higher ability students are less sensitive to changes in cost than other students, but this is not unexpected. There are a number of things that favor higher ability students. They receive scholarships; they have greater potential for improving their human capital and therefore their earnings; and their parents are generally more able to pay for their education. Higher income students are also less sensitive to changes in cost than low-income students.

The major policy implication of the differential effect of tuition on individuals of varying income is that discriminatory tuition charges

Table IV-1

The Effects of a Change in Tuition on the Enrollment Rate: Alternative Estimates

Study	Type	Year	Price Response Coefficient[a]
Corazzini, Dugan, and Grabowski	National cross section	1963	0.62
Hopkins	State cross section	1963	0.75
Barnes	Individual students	1970	1.53
Radner and Miller	Individual students	1966	0.05
Kohn, Manski, and Mundel	Individual students	1966	0.92
Hoenack	High school districts	1965	0.71
Hoenack and Weiler	Individual students	1972	1.46
Spies	Individual students	1971	0.05
Campbell and Siegel	Time series	1919-64	0.20
Bishop	Individual students	1963	0.90

Sources: Derived from the studies given in the first column, all of which are cited in the text (see index). Details of the calculations underlying the price response coefficients, shown in the last column, are available from the author. The calculations require correcting price response coefficients from various studies for price change since base year and for differences in enrollment base.

[a]Increase in enrollment rate of eighteen- to twenty-four-year olds (in percentage points) per $100 decrease in tuition, in 1974 dollars.

From: Table 9 of Michael S. McPherson's "The Demand for Private Higher Education." In *Public Policy and Private Higher Education* edited by David G. Breneman, Chester, E. Finn, and Susan C. Nelson. Washington, D.C.: The Brookings Institution, 1978, in press.

favoring low-income people would be more efficient than reducing tuition to all students. Using the gross-level approximation of student responsiveness to changes in tuition levels, and with 9.7 million students in the United States postsecondary education system, a $100 tuition reduction would attract 291,000 new students. The cost would be $999.1 million to provide the extra $100 to all students plus the cost of providing the general base subsidy for the 291,000 new students. The $100 subsidy alone would amount to $3,400 per new enrollee. In terms of efficiency, this strategy is unnecessarily expensive because the vast majority of the students who would receive the additional $100 subsidy would attend a postsecondary education institution anyway.

The debate over the effects of varying tuition policies commonly forms around the differential impact those policies have on public and private institutions; that is, the price elasticities and rates of substitution between institutions. The issue is often framed in questions such as: "If the public institutions lower tuition, what will happen to enrollments at the private institutions?" or "If student financial aid appropriations are increased, what will happen to the publics?"

Unfortunately, collective research results on this issue are less than conclusive. Although a number of studies deal with the cross elasticity and rate of substitution between public and private enrollment, as with the tuition elasticities, estimated cross elasticity varies by a large factor. McPherson (1978) compares the results of several studies. Four generalizations can be drawn from these studies: (a) the effect of a $100 decrease in price at public institutions is to increase public enrollment as a percentage of the 18- to 24-year-old population by about one percentage point (equivalent to about three percent in the public sector); (b) the effect of a $100 price change in private institutions is to increase the private enrollment rate by about one-half a percentage point (equivalent to about eight percent in the private sector); (c) the rate of substitution between public and private institutions is about .5; and (d) the results vary so widely across the studies (and are derived from various data and methodologies) that not much confidence should be placed in any single figure. A summary of study results is given in Table IV-2.

The greater direct price responsiveness in the public sector than in the private sector might be expected as calculated. A $100 price change in public institutions represents a larger percentage change than for private institutions. The larger percentage change in enrollments found in private institutions is due to the smaller enrollment base and the greater price elasticity in the private sector.

The rate of substitution of public for private enrollment indicates

that a policy to attract new students by reducing price is only half as successful as one might suppose by observing the changes in public enrollments. For each 100 new enrollments in public institutions, half of them are students who would have attended private institutions without the price reduction. It should also be pointed out that, although the rates of substitution of public for private and of private for public are the same, a price reduction of a fixed amount in public institutions will be far more harmful to private institutions than a similar reduction in private institutions will be to public institutions. The ratio of public to private enrollment is about three or four to one; therefore, a percentage point decline in enrollment in private institutions represents a much more dramatic drop for private than for public institutions.

The results of enrollment response to price changes show what happens to aggregate enrollments for the public and private institutions. The results, however, mask different responsiveness among students of different income and ability. All of the studies addressing the question of the effect of income on the preference for public or private education show that, as income rises, more is spent on private education than on public education. It is also generally true that higher ability students prefer private institutions, although empirical analysis is not conclusive.

There are few studies on the effectiveness of student financial aid to increase attendance or choice among institutions, but four general results have been found. The first is that a large proportion of aid recipients say they would not attend without the aid. Between one-third and three-fourths of grant recipients said that grants affected their choice of institution or their decision to attend (Leslie and Fife, 1974, p. 659; Carlson, 1974, p. 25). On average, about one-fourth of work-study recipients responded similarly (Carlson, 1974, p. 19).

Second, the effect on enrollment of receiving aid may be less than the effect of a change in tuition, but results are contradictory. It is understandable how aid might be less effective than tuition financial assistance. Students may not know the availability of student financial aid and may be uncertain about their eligibility for aid until after they matriculate. Consequently, given these doubts, many students may decide not to enroll; however, an aid policy that manifests itself through low tuition is a more discernable, constant cost that a prospective student can depend on while making a decision.

A related issue is the disparate populations that are likely to attend under a policy of reducing tuition level and under a policy of providing aid directly to the student. A high-tuition, high-aid policy requires the individual to take the initiative in seeking information

Table IV-2

Comparative Price Responsiveness of Public and Private Enrollment: Alternative Estimates

Study	Type (1)	Year (2)	Effect on enrollment of a $100 decrease in public price[a] Public (3)	Private (4)	Rate of substitution of public for private enrollment (5)	Effect on enrollment of a $100 decrease in private price[a] Public (6)	Private (7)	Rate of substitution of private for public enrollment (8)
Hopkins	State cross section	1963	0.95	-0.42	0.44	-0.20	0.42	0.48
Hight	Time series	1927-72	11.40	-0.44	0.038	-1.90	0.34	5.59
Barnes	Individual student	1970	1.80	-0.79	0.44	-0.46	0.98	0.47
Radner and Miller	Individual student	1966	0.11	-0.08	0.71	-0.08	0.10	0.80
McPherson	State cross section	1972		-0.64	0.72	...	...	...
Peltzman	State cross section	1966-67[b]		...	0.57	...	...	0.54
McPherson	State cross section	1968		...	0.58	...	...	...

Sources: See sources for table 9; column 5 = column 4 + column 3, except last two figures, which are from the relevant studies; column 8 = column 6 + column 7, except the Peltzman figure, which comes directly from his study.

[a]Changes in enrollment rate of eighteen- to twenty-four-year olds (in precentage points) per $100 decrease in tuition, in 1974 dollars.

[b]Academic year 1966-67.

From Table 10 of Michael S. McPherson's "The Demand for Private Higher Education." In *Public Policy and Private Higher Education edited by David G. Breneman, Chester E. Finn, and Susan C. Nelson.* Washington, D.C.: The Brookings Institution, 1978, in press.

about aid programs. Since information is sought and used more by higher income people than lower income people, it is quite possible that under an extensive aid program that relies on the individual taking the initiative to obtain information, fewer low-income people would be induced to apply for admissions and for aid relative to the number that would apply if a low-tuition policy were in effect. Thus, although the same number of students may be attracted under either program, the composition of the students might be quite different.

An analysis of several different state and federal aid programs also shows that, as with tuition, (a) the effectiveness of aid on enrollments lessens as income rises and (b) aid is more effective at private institutions than at public institutions.

The third finding is that grants are more effective than either loans or work-study programs. This finding is as one would expect. Grants are free to the student while a loan carries an obligation to repay it and work-study funds must be earned.

The last set of findings shows that there is a difference between the effect of offering aid and the effect of the amount of aid offered.

Separate analyses for the application and attendance decisions show that considerable pre-self-selection occurs before an individual applies to a postsecondary education institution. Jackson (1977) finds that the characteristics of the schools to which an individual applies are more similar than would be if the student applied to a full range of education institutions. Within this narrowed range of institutions to which a student applies, total cost is not a noticeable factor in a student's decision to attend. The effect of cost is upon the student's decision of where to apply. Similarly, the dollar amount of aid offered is not important in influencing the student's decision to attend, but it does affect his or her choice of institution.

Given a fair amount of research on student response to changes in tuition and aid programs, one might expect to find in the research literature fairly accurate and consistent estimates of these parameters. This is not the case however. The problem is that in order to determine how students will behave to changes in aid or tuition, other influencing factors must be isolated. It is the problems associated with the identification of these other factors that leads to the widely varying empirical results. In theory, researchers are unsure that they accurately model an individual's decision-making process in deciding whether to take further schooling. From a methodological perspective, there are unnatural constraints imposed by statistical analyses used. Specification error occurs when important variables, for which there are no data, are omitted. Also, data used are often

outdated. This problem is particularly acute in a field that is changing rapidly in terms of aid programs available and in terms of the characteristics of the population served.

Concerning the basic questions of what we do and do not know about the impact of tuition and aid on access and choice, as with most questions about human behavior, much more falls in the "not known" category. For a determination of the relationship between federal and state financial assistance, the costs and financial needs that students have, and the financial sacrifices they make to attend various types of institutions, cross-sectional individual data are required. Data of this kind collected over time would help policy makers at the federal and state levels decide how to coordinate and modify programs of financial assistance. For further analysis of the likely responses of students to different prices in education and pricing mechanisms, researchers need current individual longitudinal data.

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V. Interstate Distribution of Student Financial Aid Funds

by John B. Lee
Department of Postsecondary Education
Education Commission of the States

It is the general premise of this paper that, as the nation has invested increasing amounts of money to reach the goal of equal educational opportunity, little attention has been given to the distribution of student financial aid dollars. There are two reasons for this. First, and most important, there is no consensus about an appropriate measure of equity that allows cross-state comparisons. Second, there is a lack of descriptive data about students attending postsecondary educational institutions that allow comparisons to be made.

The concept of net price is suggested as an appropriate measure of equity for determining the distribution of student financial aid funds. As used in this paper, net price is defined as the amount of total college costs that a student has to pay after an expected family contribution is made and grants are received. The equity criterion for distribution of aid is that the net price should be the same for students of the same financial background attending an institution of similar cost. Net price should increase as the cost of attendance increases.

Using this concept, it should be possible to evaulate the combined effect of federal, state and local funds to provide educational opportunity to students. Currently, it is not possible to provide a detailed, comprehensive profile of the combined federal, state and local efforts for each of the states.

States differ on nearly every variable of importance that can affect the price the student faces. Tuition varies across states as does the cost of board and room. Based on 1975-1976 data, the highest average cost of attendance was in Massachusetts at $3,676. Mississippi reported the lower cost at $1,885. The national average was $2,636. Average unmet need (defined as the cost of attendance minus the expected family contribution) among states also varies a great deal. Before aid was distributed, unmet need varied from a low of $289 in Florida to a high of $1,233 in Mississippi. Although average cost of attendance and average unmet need are related, they are not highly correlated measures at the state level.

One might expect that the aggregate amount of state and federal awards varies from state to state, reflecting the differences in cost and ability of students to pay. In fact, the average amount of need-based student aid per FTE student is a state ranged from $1,159 in Maine to $128 in Utah. However, it seems reasonable to assume that this variation in the distribution of aid among states should reduce the variation in cost of attendance or in unmet need. The evidence does not support this assumption. The difference in price between Massachusetts and Mississippi was only decreased by $85, which did not reduce the unmet need in Mississippi relative to other states or close the price gap between the two states. It is clear from the analysis that the current distribution of student aid to states cannot be predicted by the cost of attendance or the level of unmet need present in the states.

Unfortunately, data do not exist that allow the direct measurement of net price as defined in the paper. The best proxy is gross unmet need. Table V-1 indicates those states with at least $200 less per award per

Table V-I

States With At Least $200 More Aid Than Predicted per FTE

	Excess Award	State Award	Federal Award Excess
California	$270	$ 46	$224
Connecticut	216	35	181
Illinois	296	170	126
Maine	794	16	778
New Mexico	425	0	425
North Dakota	295	9	286
Vermont	202	116	86

student than would be predicted on the basis of aggregate unmet need in the state. It is evident that the states of Connecticut, Illinois and Vermont exceed the $200 limit because of their state-supported student aid programs.

Table V-2 indicates those states with at least $200 less per award per student than would be predicted on the basis of aggregate unmet need in the state. States with awards significantly larger than would be predicted on the basis of unmet need are characterized as relatively wealthy states that are not serving a larger-than-average share of low-income students. Compared to low-award states, high-award states have a large proportion of awards in the form of grants. States with awards smaller than would be predicted on the basis of unmet need provide very little student financial aid through state programs; these states have a smaller-than-average proportion of their awards

Table V-2

States With At Least $200 Less Aid Per FTE Than Predicted

	Excess Award	State Award	Federal Award Deficit
Alabama	($252)	$ 4	($252)
Alaska	(277)	0	(277)
Arkansas	(279)	4	(279)
District of Columbia	(533)	0	(533)
Hawaii	(683)	2	(683)
Mississippi	(257)	4	(257)

in the form of grants. The states of Hawaii and Alaska are uniquely disadvantaged in the aid programs because of their high cost of living. While the high cost of living drives the student unmet need up, it does not improve their share of awards because, under the definitions used in the student aid programs, they do not qualify for higher levels of aid.

The current distribution of student aid in the nation can not be predicted by the cost of attendance or the level of unmet need present in the state. In fact, there is evidence that, at the extremes, the wealthier states are receiving a larger share of student aid than the lower income states. This finding leads one to believe that further research in this area is necessary. Furthermore, it appears that the student cost of attendance is affected by the state within which the student attends and that federal policy does not remediate this. In fact, federal policy may exacerbate the situation.

The first short-term federal policy option suggested is that the three institutionally based student aid programs — the National Direct Student Loan Program (NDSL), the Supplemental Educational Opportunity Grant Program (SEOG) and the College Work Study Program (CWS) — be distributed to states on a revised formula. Currently, the College Work Study program distributes funds on a formula that reflects the number of children under 18 below the poverty measure, the number of high school graduates and the enrollment in college. The other two programs should reflect not only enrollment in the state but also an independent measure of financial need in the state — but they do not.

Another formula revision that should be made concerns the regional panel review. The current review process allows for 10 percent of the funds in each of the programs to be distributed to those states with the lowest proportion of institutionally documented need, met by the allocation of the original 90 percent of the program funds. This has resulted in a few states capturing larger shares than expected, based

on independent measures of need, while other states that appear to be more deserving are receiving none. The "grantsmanship" factor appears to account for this distortion. The role of institutional statements of unmet need should be reduced in importance as a factor in the distribution of these three programs.

The second short-term policy suggested is that the State Student Incentive Grant Program (SSIGP) should furnish extra incentives for states with small student grant programs to increase the magnitude of their programs more rapidly. Special inducements should be provided for states with minimal state student grant programs to increase their effort. This could include a larger federal share to match or an increase in the matching ratio for the state. These special adjustments could be phased out as the state program became better established in the state. A final suggestion is that a measure of poverty should be built into the SSIG allocation formula so that states with large poverty populations could receive more funds.

As these two short-term policy options are investigated, the student aid policy community at the institutional, state and federal levels should develop the concept of net price as a way of measuring the equity of the distribution of aid from all sources. There is also great need for development of a national data base appropriate for measuring trends and differences in cost of education as it is influenced by aid programs.

VI. The Financial Assessment of Colleges And Universities and Its Implication for State Policy

by John Minter
John Minter Associates

Acceptance of much of the results of research done on assessing the financial condition of institutions of higher education (IHE) has been stymied by a lack of consensus about definitions of financial health and criteria for measuring it. There are a number of reasons for this lack of consensus.

One is the need to clarify the perspective or context taken for making a financial assessment. One of the more important distinctions that should be made is between assessment concerned with the continuing existence of a financially viable business and assessment concerned with changes in program quality, which may or may not have been brought about by financial distress. Most of the literature on financial distress tends to blur these two perspectives. For the educator or policy maker who seeks to upgrade research and instructional programs in higher education, the relationship between financial health and program success is important. But for the financial analyst it does not necessarily follow that programs will suffer if the institution does not receive all the funds it expects. At a particular point, the notion of program quality is an important one if the analyst is concerned with whether a market exists for institutional services or whether a major change in quality of service will destroy the market. It can be said, however, that in this country we have always had a wide range of quality among and within our colleges and universities.

Other issues of perspective that need to be resolved before conducting standardized assessments include (a) whether one's concern is with the institution that is on the verge of bankruptcy or that is unlikely to go bankrupt but which has financial troubles; (b) whether the financial assessment is to be made of an institution or the industry; (c) whether one should treat publicly owned institutions differently than privately owned institutions; and (d) whether the time perspective for assessment should be short or long term. In addition to the problems of defining the proper context for evaluation, there are also problems of measurement.

The principal and most persistent measurement problem for financial assessment of institutions is obtaining relevant and reliable financial data. Often the numbers used do not reflect something real about the financial condition of the organization. At other times, the numbers do not consistently contain the information one expects. Although these are fundamental concepts, they are seldom achieved. Given the varying institutional financial reporting procedures that are likely to persist, making comparative financial assessments among institutions will probably suffer from these data problems for some time.

Even with the best of data, one might question the meaning of an assessment for state policy. How will financial assessment serve to direct funds among institutions? It appears that the answer is that it will serve indirectly and with considerable variation from state to state. Researchers in this field emphasize that financial assessment is only a tool available to decision makers and not a substitute for their value judgments. Variation among states will persist because differences in decisions are a function of the characteristics of the decision makers, the institutions under evaluation and education goals within a state.

The possible benefits, as well as disadvantages, of an institutional financial assessment are several. First, because the issue of financial health has been considered and the discussion supported by relevant and (hopefully) reliable information, final decisions are more likely to be equitable or at least perceived to be so by the bargaining parties. The principal difficulty in achieving this benefit may well be developing financial assessment techniques perceived to be credible by both state and independently owned institutions. Second, with improved financial assessment techniques, the dialogue will no longer be about the question of the state of financial health but will focus on the relative merits of courses of action that might be taken if the sector of the industry appears to be in serious financial difficulty. Third, the process of financial assessment itself may bring about desirable changes at the institutional level. Indeed, such changes have been reported in states using the Bowen/Minter financial series.

No matter what they are, the final results of financial assessment, either of an institution or of the industry, will not please everyone. Furthermore, data can be selected to support predetermined positions. Financial data will always be under attack for noncomparability and for being outdated, particularly by those who disagree with its implications. Nevertheless, steps should be taken to improve the quality and reliability of financial data that will lead toward a better understanding of institutional financial health.

Despite the constraints imposed by the problems of definitions, measurement criteria and unreliable data, there are many substantive questions that deserve attention. For example, what are the most reliable and sensitive indicators of a college or university as a going concern? How can we identify and measure the certainty of revenues? Are colleges and universities gaining or losing financial strength? At what points and in what ways does financial distress seriously affect educational quality?

Of all these questions that might be researched, top priority should be given to determining adequate levels of revenues and expenditures for quality higher education programs in the long run. The first task is to establish a range of acceptable costs for programs. Concern is not only with operating costs but capital costs as well, including the cost of capital replacement and renewal. The next task will be to compile data on trends that will change base-line costs over time. Projected levels and changing patterns of economic growth along with inflation trends will be one key component. Demographic trends in relation to changing patterns in college attendance will be a second key element. Trends in the knowledge industry itself — new fields, new applications and new modes of teaching and learning activity — will need to be considered. The objective should not be to develop one trend line but several, each based on a different scenario. The results of such a study would provide useful long-range financial guidelines to state legislatures and to Congress.*

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* The original paper contains an extensively annotated bibliography.

Education Commission of the States

The Education Commission of the States is a nonprofit organization formed by interstate compact in 1966. Forty-six states, American Samoa, Puerto Rico and the Virgin Islands are now members. Its goal is to further a working relationship among governors, state legislators and educators for the improvement of education. This report is an outcome of one of many commission undertakings at all levels of education. The commission offices are located at Suite 300, 1860 Lincoln Street, Denver, Colorado 80295.

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